

1. A molten metal submergence device comprising:
  - a submergence chamber defined by a side wall and including an inlet in communication with an associated molten metal bath and an outlet in communication with the associated molten metal bath, wherein the inlet is positioned in relation to the side wall such that material passing through the inlet is introduced at least substantially tangentially to the side wall;
  - an inlet pipe in communication with the inlet of the submergence chamber, the inlet pipe configured to depend from a wall of the submergence chamber within the confines of the side wall; and
  - a vortex breaker disposed in the submergence chamber between the inlet and the outlet.
2. The device of claim 1, wherein the vortex breaker comprises a device from the group consisting of a ramp, a blade positioned in the chamber and an additional inlet in the submergence chamber positioned below the inlet in communication with the associated molten metal bath.
3. The device of claim 1, wherein the vortex breaker is adapted to direct material in the submergence chamber towards the outlet of the submergence chamber.
4. The device of claim 1, further comprising a discharge pipe in communication with the outlet of the submergence chamber, wherein the discharge pipe is configured to depend from a wall of the submergence chamber within the confines of the side wall of the submergence chamber.
5. The device of claim 1, further comprising a discharge tube in communication with the outlet and the associated molten metal bath, wherein the discharge tube aligns with a longitudinal axis of the submergence chamber along at least a substantial length of the discharge tube.
6. The device of claim 1, wherein the side wall is circular.
7. The device of claim 1, further comprising a lid covering the submergence chamber.

8. A method for submerging metal salts into a molten metal bath, the method including:  
providing a chamber separate from and in communication with a molten salt electrolyte bath;  
introducing molten salt electrolyte from the molten salt electrolyte bath into the chamber, wherein the molten salt electrolyte creates a vortex in the chamber;  
introducing a solid metal salt into the chamber to create a mixture; and  
flushing the mixture in the chamber back into the molten salt electrolyte bath.
9. The method of claim 8, wherein the step of flushing the mixture in the chamber back into the molten salt electrolyte bath includes breaking the vortex.
10. The method of claim 8, wherein the step of flushing the mixture in the chamber back into the molten salt electrolyte bath includes discharging the mixture from the chamber below a layer of substantially pure molten metal.
11. The method of claim 8, wherein the molten salt electrolyte in the introducing molten salt electrolyte step comprises magnesium and chlorine.
12. The method of claim 8, wherein the solid metal salt in the introducing the solid metal salt into the chamber comprises powdered magnesium chloride.
13. The method of claim 8, wherein the providing a chamber step further includes placing the chamber in the molten metal bath.
14. The method of claim 8, wherein the introducing molten salt electrolyte from the molten salt electrolyte bath step includes pumping molten salt electrolyte disposed below a layer of substantially pure molten metal into the chamber.
15. A system for submerging material into molten metal comprising:

a cell for holding a molten metal mixture undergoing a chemical or physical reaction where the molten metal mixture is converted to at least substantially pure molten metal that floats in a layer above the molten metal mixture;

a submergence chamber disposed in the cell, wherein the submergence chamber is defined by a side wall and includes a chamber inlet and a chamber outlet;

an inlet pipe in communication with the cell and the chamber inlet, wherein the inlet pipe is adapted to draw the molten metal mixture from below the layer of at least substantially pure molten metal; and

a discharge pipe in communication with the cell and the chamber outlet, wherein the discharge pipe is adapted to discharge a molten metal mixture from the submergence chamber below the layer of at least substantially pure molten metal.

16. The system of claim 15, further comprising a lid covering the cell and the submergence chamber.

17. The system of claim 15, further comprising a vortex breaker disposed in the submergence chamber.

18. The system of claim 15, further comprising an impeller disposed in the cell for transporting the molten metal mixture in the cell towards the submergence chamber.

19. A molten metal submergence device comprising:

a submergence chamber defined by a side wall and including an inlet in communication with an associated molten metal bath and an outlet in communication with the associated molten metal bath, wherein the inlet is positioned in relation to the side wall such that material passing through the inlet is introduced at least substantially tangentially to the side wall; and

an inlet pipe in communication with the inlet of the submergence chamber, the inlet pipe configured to depend from a wall of the submergence chamber within the confines of the side wall.